WHAT IS CLAIMED IS:

1. A method for manufacturing a polycrystalline semiconductor layer, comprising the step of laser annealing an amorphous semiconductor layer in a low degree vacuum atmosphere.

2. The method defined in Claim 1, wherein said annealing is performed under a pressure between about 1.3 x 10^3 Pa and about 1.3 Pa.

3. The method defined in Claim 2, wherein said annealing is performed in an annealing atmosphere containing an inert gas.

4. The method defined in Claim 3, wherein said inert gas includes a gas selected from the group consisting of nitrogen, hydrogen, argon, and neon.

5. The method defined in Claim 1, wherein said annealing is performed in an annealing atmosphere containing an inert gas.

6. The method defined in Claim 5, wherein said inert gas includes a gas selected from the group consisting of

nitrogen, hydrogen, argon, and neon.

7. A method of manufacturing a thin-film transistor, comprising the steps of:

forming an amorphous silicon layer on a substrate;

disposing said substrate inside an annealing chamber;

creating a low degree vacuum atmosphere within said annealing chamber; and

irradiating focused laser light onto the amorphous silicon layer overlying said substrate through a chamber window built in said annealing chamber to anneal and polycrystallize said amorphous silicon, whereby a polycrystalline silicon layer is formed as an active layer of said thin-film transistor.

8. The method defined in Claim 7, wherein said annealing is performed under a pressure between about 1.3 x 10^3 Pa and about 1.3 Pa.

9. The method defined in Claim 7, wherein said annealing is performed in an annealing atmosphere containing an inert gas.

10. The method defined in Claim 9, wherein said inert

gas includes a gas selected from the group consisting of nitrogen, hydrogen, argon, and neon.

11. A laser annealing apparatus, wherein focused laser light is irradiated through a chamber window onto an object to be processed placed inside a annealing chamber, comprising:

an introducer for introducing an inert gas into said annealing chamber during annealing;

a pump for reducing the pressure in said annealing chamber; and

a pressure controller for controlling the pressure in said annealing chamber to maintain a pressure between about 1.3×10^3 Pa and about 1.3 Pa.